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Kids and Classrooms

Accommodating Change in Foxborough

Metropolitan Area
Planning Council
60 Temple Place
Boston, MA 02111

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ABOUT THIS REPORT

The Metropolitan Area Planning Council is the officially designated regional planning agency for 101 cities and towns in metropolitan Boston. The Council helps its member communities plan in the areas of economic development, housing, demographics, transportation, water, solid waste and open space.

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KIDS AND CLASSROOMS:
ACCOMMODATING CHANGE IN FOXBOROUGH

1. EXECUTIVE SUMMARY

Purpose of the Study

This elementary school enrollment study was undertaken by the Metropolitan Area Planning Council (MAPC) to assist the town of Foxborough in matching future enrollments with existing classroom capacity. MAPC has examined the potential for enrollment growth during the coming decade by use of a demographic model augmented by town development indicators. This study provides information and make recommendations regarding classroom needs for the coming decade for the School Committee and the Growth Policy Committee.

Enrollment Forecasting Model

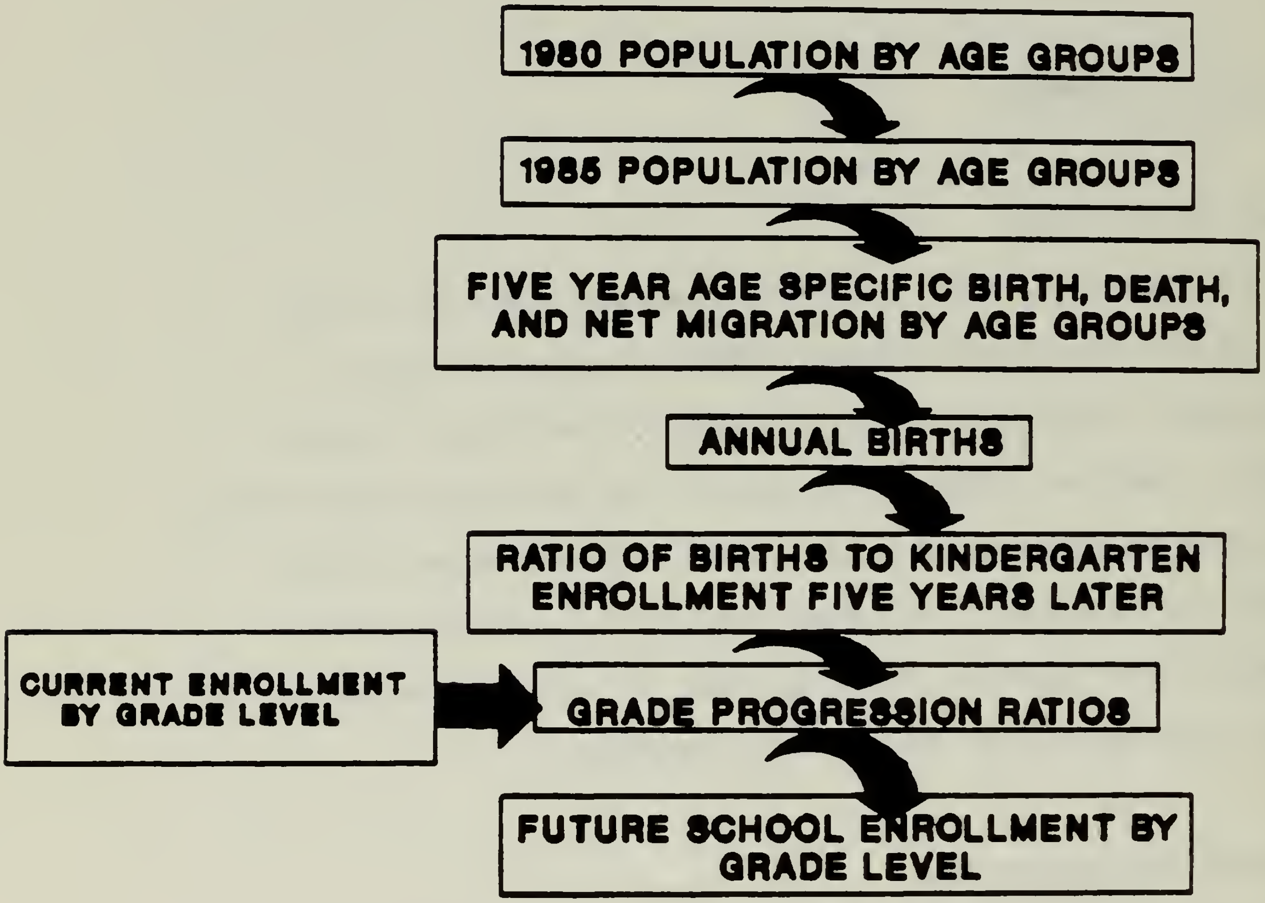
The enrollment forecasting model developed by MAPC is depicted in Figure 1. Using the 1980 and 1985 age-specific population as a base, this five-year trend in births, deaths, and net migration was extrapolated to create an age-group population forecast for 1990 and 1995.

Annual resident births were forecast by applying recent age-specific birth rates to the projected population of child-bearing age women.

Historical ratios of births to kindergarten enrollments five years

FIGURE 1

ENROLLMENT FORECASTING MODEL DEVELOPED BY MAPC


1980 POPULATION BY AGE GROUPS
1985 POPULATION BY AGE GROUPS
FIVE YEAR AGE SPECIFIC BIRTH, DEATH, AND NET MIGRATION BY AGE GROUPS
ANNUAL BIRTHS
RATIO OF BIRTHS TO KINDERGARTEN ENROLLMENT FIVE YEARS LATER
CURRENT ENROLLMENT BY GRADE LEVEL
GRADE PROGRESSION RATIOS
FUTURE SCHOOL ENROLLMENT BY GRADE LEVEL

SOURCE: MAPC

later, by elementary school district, were used to translate births into new students. Following currently enrolled students as well as new entrants through the elementary grades via grade progression ratios produced an enrollment forecast by year, grade, and school district.

Summary of Enrollment Forecast Results

The results of this study show at the TOWN level:

0 Elementary school enrollment will increase from 876 to 1,079 by the year 2000, a gain of 203 students, or 23 percent over 1988.

0 Year-to-year enrollment growth will fluctuate between 1992 and 1996, within a range above the current level, and increase to an enrollment peak of 1,115 in 1997.

0 Births will begin to decline for some years near the end of the forecast period as the smaller generation of women born during the late 1960s and 1970s have their children. Enrollment levels will begin reflecting this decline in 1998.

At the DISTRICT level:

0 Burrell and Taylor are forecast to experience enrollment increases similar in magnitude.

0 In Burrell, enrollment is projected to peak at 486 students in 1997, an increase of 129, or 36 percent over 1988.

0 In Taylor, enrollment is projected to reach 422 in 1997, an increase of 98 students, or 30 percent over 1988.

Classroom Needs Assessment and Recommendations

Assessment of classroom needs is based on the number of potentially available existing classrooms, students-per-classroom community standards, and MAPC enrollment projections.

Projected enrollments will require an increase in the number of classrooms used. In the peak enrollment year, 1,115 students will require 44 classrooms, while only 36 are currently in use. The additional capacity needed is available in the Lewis school, which presently has eight classrooms unused by the school system.

2. DATA AND METHODS

The age-group population forecasts produced by MAPC* for use in enrollment forecasting are based on a variation of the Cohort-Migration-Survival Method**, which considers recent population trends, fertility, mortality and net migration. A forecast of births is provided*** for creating enrollment forecasts through 2000. Once the school age population has been estimated, the children are followed through the school system via birth-to-kindergarten and grade-progression ratios. The enrollment forecasting model developed by MAPC is depicted in Figure 1.

A. DATA

The data required are:

1. Records from the Massachusetts Department of Public Health, Division of Health Statistics and Research, for:
    - a. age- and sex-specific population,
    - b. resident births by age of mother,
    - c. age-specific resident deaths****.

---

* See appendix 2.

** See reference 1.

*** See appendix 5.

**** See reference 6 and appendices 4, 6, 7.

2. Federal Census age- and sex-specific population counts and estimates*.
3. School Department records of enrollments by grade and district**.

Optional data are:

1. State Census population counts***.
2. Massachusetts Institute of Social and Economic Research (MISER), University of Massachusetts at Amherst age- and sex-specific population forecasts****.

The characteristics of most Foxborough residents during the next 10 years will be similar to its recent residents. Therefore, 10 years of population and enrollment data should be sufficient for this study.

B. METHODS

The Cohort-Migration-Survival method projects the components of population change (births, deaths, and net migration) separately for each age cohort (persons born in each year) using assumptions about future rates of fertility, mortality, and net migration. The base year population was carried forward, year by year, in terms of five-year cohorts of age and sex by means of projected survival and net migration rates. Each year a new birth cohort of infants is derived by applying projected fertility rates to the surviving female population. The births are added to the population and carried forward, year by year, in the same manner as the initial population is aged over time.

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* See reference 2 and appendix 4.

** See appendix 1.

*** See reference 3.

**** See reference 4.

1. Natural Increase

Population changes due to births and deaths alone is defined as the natural increase. Tracking births and deaths over several years establishes a pattern in the number of births, the fertility rate of different age cohorts of women, and age-specific death rates. Crude birth/death rates are calculated by age group for a five-year period by dividing births/deaths by the appropriate population group and multiplying by 1000.

2. Net Migration

With the natural increase accounted for, other changes in the population can be attributed to migration. Migration is a measure of population movement across municipal boundaries. A formula for describing the net effect of population movements into and out of a community would be: net migration = the change in the population - the natural increase.

3. Population and Births Forecast

The 1980 Federal Census provided a base population figure. The 1985 population was estimated after review of the 1985 State Census; Federal Census estimates for 1982, 1984, and 1986; the MISER estimate for 1985; and the MISER forecast for 1990. The 1985 population was distributed across age groups according to the pattern established by the 1980 Federal Census and the 1985 MISER population estimate. The population change between 1980 and 1985, after accounting for the natural increase, provided an estimate of the recent net migration.

Calculation of net migration begins with applying the age-specific death rates to the 1980 population, obtaining estimates of survivors in 1985 and subtracting such estimates from the corresponding 1985 population. Use of average age-specific death rates to the extreme age groups, 0 to 10 and over 75, are likely to cause bias. Therefore, net migration for these age groups are assumed as follows:

AGE GROUP	
5 to 9	same net migration rate as for 10 to 14,
0 to 4	50% of the net migration rate for 5 to 9,
75+	10% of the net migration rate for 65 to 75.

Extrapolating this recent five-year trend in deaths and net migration, town population by age groups, for those above 5 years of age, was forecast for 1990 and 1995. Annual resident births were forecast in five year intervals from 1990 to 2000 by applying the average birth rates from 1982-1986 to our forecast of females of child bearing age. Age-specific birth rates were assumed to remain unchanged. Straight-line interpolation created a year-by-year annual births forecast from 1990 through 2000.

The population forecasts are separated into male and female populations according to the historical trend established by the 1980 Federal Census and the 1985 MISER estimate.

C. GRADE PROGRESSION

A forecast of elementary school enrollment by grade level was developed from the combination of recent and projected births, birth-to-kindergarten ratios, and grade-progression ratios for each school district*.

The school age population was translated into students and followed through the school system by use of grade progression ratios. These ratios show the progression of students of similar age from birth to kindergarten and from one grade to the next. The size of a particular grade cohort can be altered by in- and out-migration, grade level advancement or retention, or student deaths.

A particular progression ratio is derived by dividing the enrollment of one grade cohort by the same cohort's enrollment in the previous grade. Following each cohort in this manner for a number of years allows calculation of grade-specific average progression ratios. These ratios establish the pattern of fluctuation in student advancement through the school system. A ratio greater than 1 means a particular cohort has gained members since the previous year. The addition in members may be due to new town residents, transfers from other school systems or another district, or from exceptional grade advancement. A ratio of less than 1 means a particular cohort has lost members since the previous year. The loss in members may be due to families moving to a new school district, student transfers, deaths, or grade retention.

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*See appendix 10.

The development of birth-to-kindergarten progression ratios requires matching Town Clerk birth records to school district street listings. A sample of five years of birth records covering a 10-year period, taking every other year into the sample, were matched to the two current full-time elementary school districts, Burrell and Taylor. The resulting births-by-school district figures were then divided into kindergarten enrollments five years later. This established town- and district-specific birth-to-kindergarten patterns. The resulting ratios of births-to-kindergarten were used to translate recent births into new students entering the two elementary schools.

D. OTHER INDICATORS OF POTENTIAL ENROLLMENT GROWTH

Results of our enrollment forecasting model were checked for consistency with the following town development statistics and qualitative information:

- 0 Recent and proposed residential developments
- 0 Potential residential development (buildout)
- 0 Interviews with the local planner, building inspector, conservation commission, developers, and bank lending officers.

3. RECENT ENROLLMENT TRENDS

In the early 1970s Foxborough saw the culmination of an enrollment boom that began a decade earlier. Elementary school enrollments peaked at 1,621 in 1972. A period of steady decline followed during which enrollments fell to a low of 787 in 1985. In 1986, enrollments in Foxborough's elementary school system started on a new upswing. 1988's enrollment of 876 was larger than any since 1981*.

District enrollment trends could be misleading, compared to those townwide, since school district boundaries are occasionally altered. The Burrell and Taylor school districts have been the primary districts in use over the last five years. District enrollments for these two schools plus kindergarten enrollment in the Lewis school produce town enrollment. Burrell's enrollments started on the current upward trend in 1984, Taylor's in 1988, and Lewis's in 1985. These joint influences brought the beginning of townwide increases in 1986.

Prior to 1985, kindergarten enrollments followed the downward trend of town elementary school enrollments. However, enrollments have been increasing steadily since 1985, and the kindergarten classes of the last two years have been the largest of all the elementary grades. Steady growth in these enrollments are an important indication of future enrollment growth.

Enrolments in the remaining elementary grades, one through four, fell from the peak in the early 1970s into the next decade, then began to rise again about 1984.

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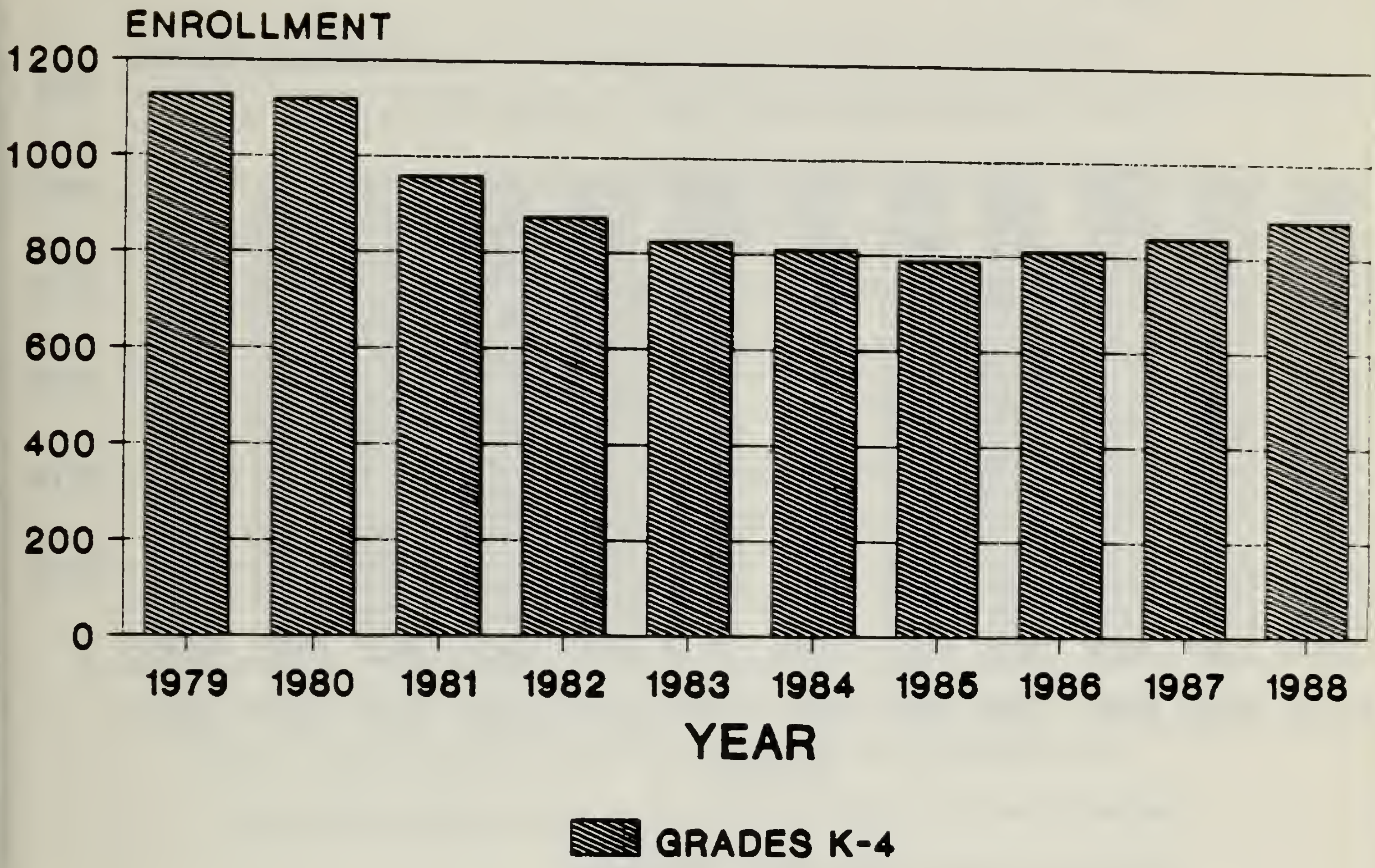
*See Figure 2 page 11 and appendix 1.

FIGURE 2



HISTORICAL ELEMENTARY SCHOOL ENROLLMENT

NOTE: DATA EXCLUDES UNASSIGNED AND METCO STUDENTS

4. ENROLLMENT FORECAST*

Town**

Enrollments in grades K-4 are projected to increase from 876 to 1,115 or by 27% between 1988 and 1997, the peak forecast year.*** Compared to the boom of the 1960s when enrollments increased by 57% between 1960 and 1969, this increase is expected to be more modest in size. The path leading to the peak year will include a few minor fluctuations, the largest being a 1.5% dip from 1991 to 1992. Enrollments are projected to rise again in 1993. A period of declining enrollments will follow 1997, the peak year. By 2000, the last year of the forecasts, enrollments will be 1,079, still 23% greater than in 1988.

---

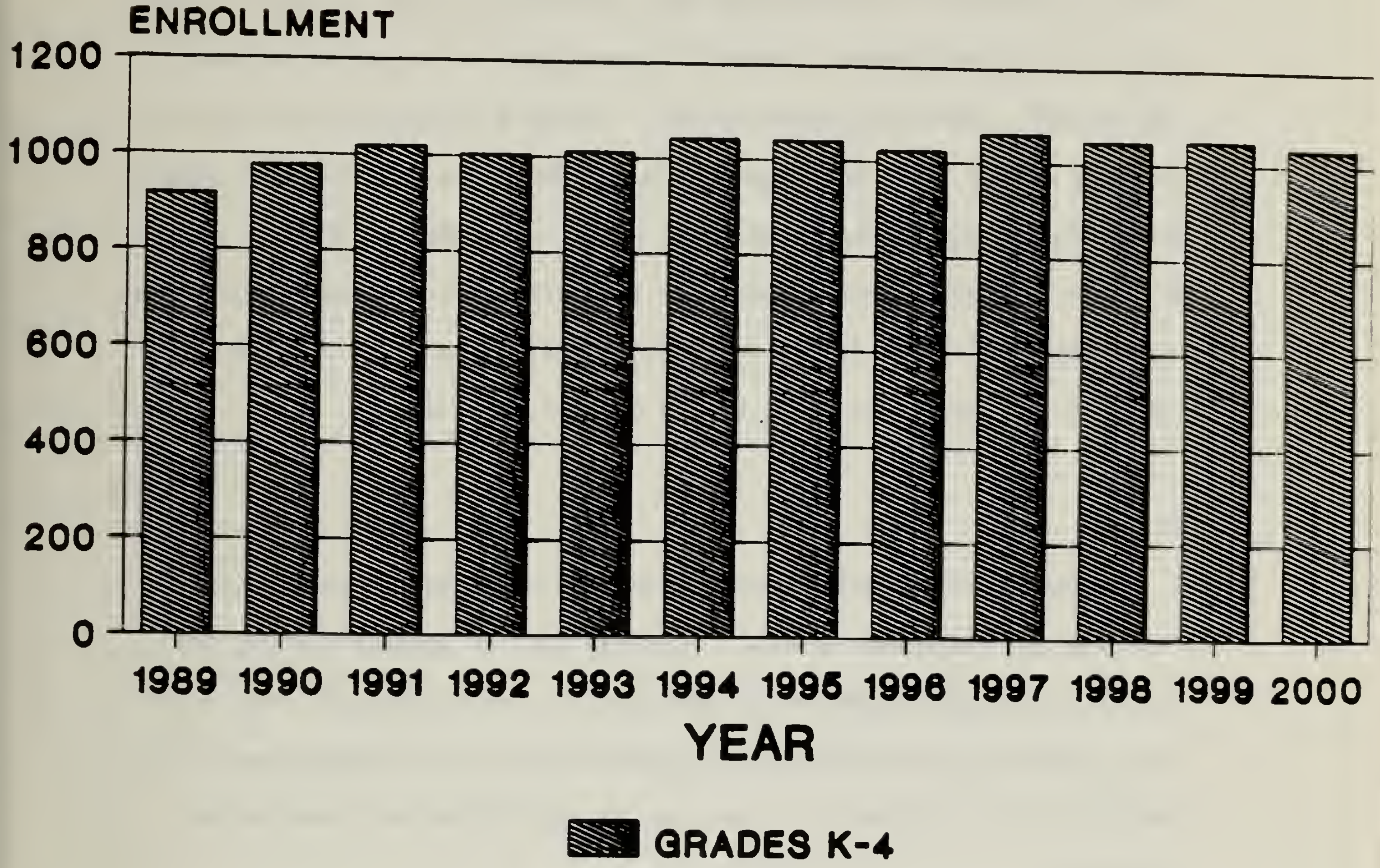
* All projections in this study assume the current school district boundaries and the separation of kindergarten students from other elementary students will remain unchanged.

** For a comparison of townwide grade level forecasts see appendix 15 for the New England School Development Council's (NESDEC). NESDEC and MAPC forecasts' differ insignificantly. Forecasting throughout New England does not allow NESDEC to consider unique community demographic and development trends while MAPC can. Minor variations in these forecasts are expected.

*** See Figure 3 page 13 and appendix 2.

FIGURE 3

ELEMENTARY SCHOOL ENROLLMENT FORECAST



NOTE: DATA EXCLUDES UNASSIGNED AND METCO STUDENTS

District

Similar enrollment increases are expected in the two districts. 1997 is projected to be the peak year in both districts as well as for overall town enrollments. Burrell's enrollment is projected to reach 486 by 1997, 36% higher than in 1988. Taylor's enrollment is projected to reach 422 by 1997, 30% higher than in 1988. The rate of enrollment growth during the forecast period will not be steady in either district. Although enrollments will fall after the peak year, Burrell's enrollment will still be 473 in 2000, or 32% greater than in 1988. Taylor's will be 411 in 2000, or 27% greater than in 1988.

Grades

Trends in kindergarten enrollments and in births precede trends in the advanced elementary grades. As grade cohorts advance through the elementary system, experiencing additions to and withdrawals from their ranks, the size of any particular grade reflects its kindergarten size. Therefore, this section will focus on the projection of kindergarten students.

Kindergarten enrollments will follow an unsteady path for the next decade. Enrollments will peak in 1991, earlier than the other grades. This early peak in kindergarten class size will result in the 1997 peak in town and district enrollments. An average kindergarten class size of 162 prevailed from 1983 to 1988. This group's average class size for 1989-2000 is projected to be 199. On average, this is 37 more students per grade as these kindergarten students progress through the advanced grades. By 1999, the kindergarten class size is projected to have fallen below the 1989-2000 average with a downward trend. In 2000, kindergarten enrollment is projected to be 196, only one more than in 1988.

5. CLASSROOM NEEDS ASSESSMENT

A detailed projection of growing enrollments has been presented. More information is necessary to plan where these students will attend school in the coming decade. This section presents an analysis of projected enrollments and existing classroom capacity.

Existing classrooom capacity appears to be sufficient for the projected elementary student body*. The Lewis school is the only existing elementary school facility which could support significant expansion of enrollments.

A. Elementary School Capacities

School Committee standards for providing quality education limit the number of students per classroom to:

GRADE	STUDENTS/CLASSROOM
K	25+
1-2	20-22
3-4	25

The number of classrooms in each of the elementary schools as of 1988 are as follows:

---

*See Figure 4 page 17.

SCHOOL	PHYSICAL LIMIT	FULL-TIME CLASSROOMS	SPECIAL USE CLASSROOMS	POTENTIAL ADDITIONAL	POTENTIAL AVAILABLE
BURRELL	21	17	4	0	17
TAYLOR	20	15	5	0	15
LEWIS	17	4	5	8	12
TOTAL	58	36	14	8	44

Calculations of required classrooms based on current and projected enrollments and the current students-per-classroom standards are presented in appendix 3.

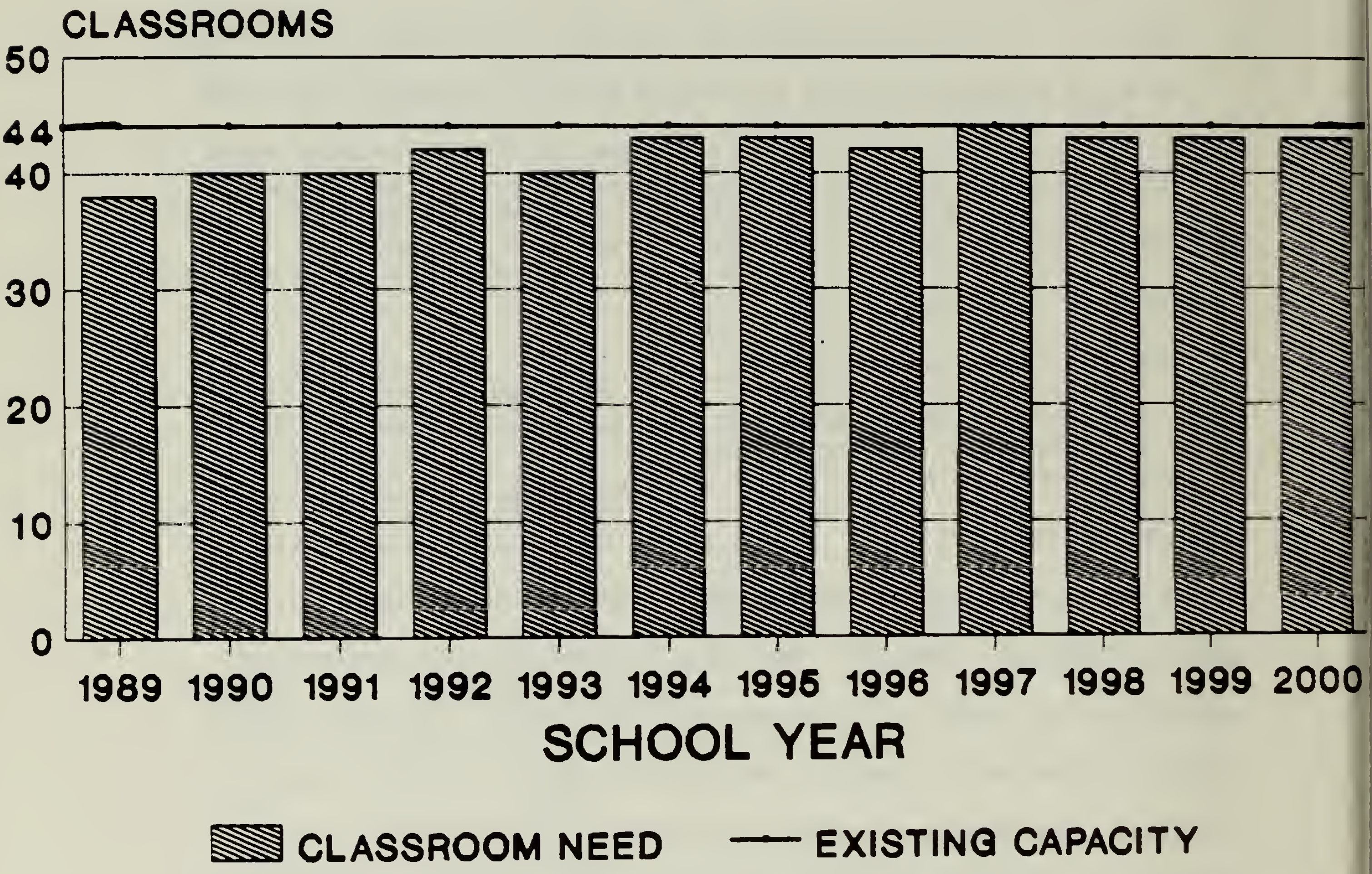
Note the following definitions. "Special use" classrooms are those rooms reserved for special education programs or art and music. Based on current use there are 14 special use classrooms broken down as follows: Burrell has three special education and one art and music; Taylor has four special education and one art and music; Lewis has five special education. Potential additional classrooms were derived from subtracting the number of classrooms used for regular full-time classes and those reserved for special uses from the physical limit of each building. Potential available classrooms is the sum of full-time classrooms and existing additional classrooms that could be brought into use by the school department (potential additional).

B. Projected Classroom Needs

All classroom needs assessments are based on the number of classrooms potentially available, students-per-classroom community standards, and MAPC enrollment projections.

FIGURE 4

FOXBOROUGH CLASSROOM NEED FORECAS VS. CAPACITY



SOURCE: FOXBOROUGH SCHOOL DEPARTMENT
METROPOLITAN AREA PLANNING COUNCIL

Town

There are currently 36 classrooms in use. A 1988 total elementary school enrollment of 876 students fills these 36 rooms. In 1989 we project 916 students requiring 38 classrooms, two more than are currently in use. In 1997, we project a peak enrollment of 1,115 students requiring 44 classrooms, eight more than are currently in use. In 2000, the last year of the forecast, we project 1,079 students requiring 43 classrooms, seven more than are currently in use.

Districts

In Burrell, we project enrollment to peak in 1997 at 486 students requiring 22 classrooms, five more than are currently in use. In Taylor, we project enrollment to peak in 1997 at 422 students requiring 18 classrooms, three more than are currently in use. In Lewis, or kindergarten, we project enrollment to reach 206 in 1997 requiring four double session classrooms, eight less than are currently in use.

Grades

In 1997, the peak enrollment year, we project classroom needs by grade to be four kindergartens, 11 first grades, 11 second grades, nine third grades and nine fourth grades.

C. Recommendations

Balancing school enrollment growth against existing classroom facilities and already tight municipal revenues is a problem facing many Massachusetts communities. This section explores how Foxborough can meet the needs of its growing elementary school population while staying within existing classroom capacity.

Short-Term

The next school year's enrollments will strain the system as presently organized. In 1989, 916 students could fill 38 classrooms but only 36 are available. The kindergarten class will fit comfortably in the four classrooms provided by the Lewis school. Housing the students in grades one through four in the 32 classrooms available in Burrell and Taylor may require accepting class sizes of 25+ in grades one and two and 29+ in grades three and four. This may be the only option for next year considering the time required to hire additional teachers and work out a new student assignment plan.

If time permits, school district boundaries could be altered to reduce the number of potential students from the current Burrell district and increase that of Taylor. This would ease the pressure on class sizes until further measures can be taken.

Intermediate-Term

Housing additional grades in Lewis will become necessary by the 1990 school year. Returning Lewis to a full kindergarten through fourth grade elementary school appears to be the most feasible option. This school is located within the current Burrell district, the district projected to experience the largest enrollment gains. This solution would not require any further actions since the projected enrollment can fit into the 44 potentially available classrooms of the three elementary schools.

Depending upon the availability of space in the middle and high schools, the possibility of altering the mix of grades in these and the elementary schools might be considered. For example, the classroom shortage could be relieved by putting 4th grade students in the middle school along with the 5th, 6th and 7th grade students. Students in grades 8-12 would form the high school.

There are other possible reconfigurations which are beyond the scope of this report. Mixing students of different stages of maturity needs the careful consideration of both school staff and parents.

Long-Term

The enrollment forecasts and classroom needs projections represent the most likely outcome. If enrollment growth is significantly greater than that projected, other options need to be considered. The housing of all kindergarten classes in the Igo building is one possibility. Grades one through four could remain in the three elementary schools keeping the mix of grades in middle and high school as they are. Portable classrooms, as an extreme yet temporary measure, could be feasible. A small addition to one of the elementary schools would be an expensive, yet permanent, solution to space shortages. The current enrollment expansion is expected to begin trailing off by 1998. Before major capital expansions are undertaken, prolonged and dramatic increases in enrollments, above what has been forecast here, should appear likely.

6. MONITORING FUTURE ENROLLMENTS

We have presented the most likely outcome for enrollment growth in Foxborough over the coming decade. However, the future is always uncertain and many changes are likely between now and the projected enrollment peak, almost 10 years away. It is essential for local officials and groups to annually monitor the factors which could most dramatically influence future enrollments.

A. Year-to-Year Update

The forecasts should be updated annually with new birth and death data from the Massachusetts Department of Public Health. These data will show the natural increase of the population. Do not use birth figures reported in the town census. These figures tend to undercount due to the omission of illegitimate births and other inaccuracies. Also collect federal population counts or estimates. Town census data should not be mixed with federal data since different collection and reporting procedures sometimes result in major differences in population counts. In years when federal population counts or estimates are available, for example, when the 1990 Census or bi-annual Census estimates are available, implied net migration can be updated. Collect annual grade-specific enrollments from the School Department.

Evaluate new data and update the model in light of the following recent trends. Annual births for 1980-1987 have averaged 192. Annual deaths for 1980-1987 have averaged 104. The natural increase, obtained by subtacting deaths from births, is 88, or 176 over a two-year period.

1980-1986 bi-annual population change has averaged 134. Therefore, implied net migration has been -42 bi-annually from 1980-1986.

Future evaluations of new school enrollment growth projections should be done within the context of these recent data. Does the update show MAPC forecasts to be higher, lower, or about in line with what is expected? New data that is far higher or lower than that obtained from the recent past could indicate a shift in underlying demographic trends.

B. Range of Forecast Uncertainty

Demographic and residential development trends are the sources of greatest potential forecast error. Forecasts are usually based on an assumption that the future is likely to be similar to the recent past. If this assumption becomes a poor one, future elementary school enrollments could differ significantly from what is expected.

Birth Rates

The recent rise in births can be related to a combination of factors. The relatively large number of women born in the early years of the baby boom began reaching their prime child bearing ages during the 1970s. By 1980, the substantial number of women born in the middle of the baby boom had reached prime child-bearing age. This situation would have created a pronounced rise in births if several factors had not worked to keep birth rates from rising.

Birth rates have been held down by the recent tendency to delay marriage and further delay birth of the first child. Several uniquely local influences also operated to reduce the number of births from what it might have been. The relatively high cost of living in this region has kept family size down. The higher-than-average participation of women in the labor force and their high level of education also have the effect of reducing family size. Birth rates in the Boston metropolitan area have been stable since 1976.

There are few factors which seem likely to alter the present birth rate with the possible exception of recently observed shifts in age-specific rates*. The cumulative affect of three key age group's birth rates most strongly influences the overall rate. The 20-24 year old group is shrinking in numbers and experiencing declining birth rates. The number of 25-29 year olds is also shrinking slightly and experiencing declining birth rates. 30-34 year olds are increasing their numbers and experiencing increasing birth rates. Since about 60% of all births occur to women in their 20s, fewer births for this group will probably offset increases for the 30-34 year old group.

Most experts expect the number of births to begin dropping in the early 1990s. The dramatic difference between the number of women born to the baby boom generation and those born to the next is a well-documented demographic phenomenon. The large upcoming drop in the number of women of child bearing age is likely to reduce the number of births without any increase in the birth rate.

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* See reference 5.

Residential Development

The type, size, and location of residential development can have significant implications for school enrollment growth. Single-family homes tend to add far more to the school age population per unit than do condominiums. A very large condominium or apartment development has the potential to add a significant number of students to the school system. Intense residential development of one section of town can alter expected school district enrollment growth.

Residential buildout by district according to current zoning suggests a similar number of dwelling units could be developed in the two school districts currently in use in Foxborough - only nine percent more units are potentially developable in Burrell than in Taylor.

Residential development information should be updated frequently and compared to the information available when earlier forecasts were made. Developers who have gained approval for their projects or have pending proposals could reduce project size, or delay or drop their plans if they feel market conditions are too poor for a successful outcome. Particular attention should be paid to any change in the mix of single-family versus multi-family housing in town, relatively large developments of any type, and the location of developments across school districts.

An example of how significant the effects of residential activity could be on school enrollments is the Cannon Forge project of Skanco

Development Corporation. Approval was given to build 327 two-bedroom condominium units, with 40 presently built. If the remaining 287 approved units attracted families, a significant number of new students could be added to the public school system.

A potential source of demand for residential development in Foxborough is its proximity to the fastest growing segment of the region. Including Foxborough, its bordering towns within the MAPC region, and nearby Route 495 communities, over 3.4 million gross sqare feet (GSF) of commercial and industrial space is under construction or recently completed. More than 3,000 new jobs could be generated from these developments. This same group of communities has plans approved or proposed for 5.5 million GSF to go in between 1989 and 1995. This new commercial and industrial development may create new jobs and generate additional housing demand above the recent rate. Given Foxborough's proximity to this development and its residential character, the town should expect to share in the residential growth generated.

STATISTICAL APPENDIX

FOXBOROUGH 6 YEAR ENROLLMENT HISTORY

(START OF SCHOOL) YEAR		GRADES					
		K	1	2	3	4	TOTAL
1983	BURRELL	91	75	66	95	90	417
	TAYLOR	49	93	82	93	90	407
	TOTAL	140	168	148	188	180	824
1984	BURRELL	90	91	85	74	92	432
	TAYLOR	47	69	89	80	91	376
	TOTAL	137	160	174	154	183	808
1985	LEWIS	144					144
	BURRELL		78	87	85	82	332
	TAYLOR		72	68	97	74	311
	TOTAL	144	150	155	182	156	787
1986	LEWIS	167					167
	BURRELL		84	76	97	80	337
	TAYLOR		74	69	69	94	306
	TOTAL	167	158	145	166	174	810
1987	LEWIS	192					192
	BURRELL		95	90	75	100	360
	TAYLOR		83	70	68	67	288
	TOTAL	192	178	160	143	167	840
1988	LEWIS	195					195
	BURRELL		95	101	86	75	357
	TAYLOR		95	89	72	68	324
	TOTAL	195	190	190	158	143	876

Source: Foxborough School Department

APPENDIX 2

MAPC ENROLLMENT FORECAST

(START OF SCHOOL) YEAR		GRADES K	1	2	3	4	TOTAL
1989	LEWIS	162					162
	BURRELL		112	99	105	87	402
	TAYLOR		99	94	88	72	352
	TOTAL	162	210	193	192	159	916
1990	LEWIS	203					203
	BURRELL		89	116	102	106	413
	TAYLOR		82	98	93	88	360
	TOTAL	203	171	214	195	193	976
1991	LEWIS	216					216
	BURRELL		112	92	120	103	428
	TAYLOR		104	82	96	93	374
	TOTAL	216	215	174	216	196	1018
1992	LEWIS	162					162
	BURRELL		119	116	96	121	452
	TAYLOR		110	102	80	96	389
	TOTAL	162	229	219	176	218	1003
1993	LEWIS	208					208
	BURRELL		89	124	120	97	429
	TAYLOR		82	109	101	80	373
	TOTAL	208	171	233	221	177	1010
1994	LEWIS	211					211
	BURRELL		114	92	128	121	456
	TAYLOR		106	82	107	101	396
	TOTAL	211	220	174	235	222	1063
1995	LEWIS	213					213
	BURRELL		116	119	96	129	460
	TAYLOR		107	105	80	107	400
	TOTAL	213	223	224	176	237	1073
1996	LEWIS	210					210
	BURRELL		117	120	123	97	457
	TAYLOR		109	106	103	80	399
	TOTAL	210	226	227	226	177	1066

MAPC ENROLLMENT FORECAST

(START OF SCHOOL) YEAR		GRADES					
		K	1	2	3	4	TOTAL
1997	LEWIS	206					206
	BURRELL		115	122	125	124	486
	TAYLOR		107	108	105	103	422
	TOTAL	206	222	230	229	227	1115
1998	LEWIS	203					203
	BURRELL		113	120	126	126	485
	TAYLOR		105	106	106	105	421
	TOTAL	203	218	226	232	231	1110
1999	LEWIS	199					199
	BURRELL		112	118	124	128	481
	TAYLOR		104	104	104	106	418
	TOTAL	199	215	222	228	234	1098
2000	LEWIS	196					196
	BURRELL		110	116	122	125	473
	TAYLOR		102	102	102	104	411
	TOTAL	196	211	219	224	229	1079

Source: Metropolitan Area Planning Council.

APPENDIX 3

FOXBOROUGH PROJECTED CLASSROOM NEEDS

(START OF SCHOOL)				GRADES			
YEAR		K	1	2	3	4	TOTAL
1989	LEWIS	3					3
	BURRELL		5	5	4	4	18
	TAYLOR		5	5	4	3	17
	TOTAL	3	10	10	8	7	38
1990	LEWIS	4					4
	BURRELL		4	6	4	5	19
	TAYLOR		4	5	4	4	17
	TOTAL	4	8	11	8	9	40
1991	LEWIS	4					4
	BURRELL		5	5	5	4	19
	TAYLOR		5	4	4	4	17
	TOTAL	4	10	9	9	8	40
1992	LEWIS	3					3
	BURRELL		6	6	4	5	21
	TAYLOR		5	5	4	4	18
	TOTAL	3	11	11	8	9	42
1993	LEWIS	4					4
	BURRELL		4	6	5	4	19
	TAYLOR		4	5	4	4	17
	TOTAL	4	8	11	9	8	40
1994	LEWIS	4					4
	BURRELL		6	5	5	5	21
	TAYLOR		5	4	5	4	18
	TOTAL	4	11	9	10	9	43
1995	LEWIS	4					4
	BURRELL		5	6	4	5	20
	TAYLOR		5	5	4	5	19
	TOTAL	4	10	11	8	10	43
1996	LEWIS	4					4
	BURRELL		5	6	5	4	20
	TAYLOR		5	5	4	4	18
	TOTAL	4	10	11	9	8	42

FOXBOROUGH PROJECTED CLASSROOM NEEDS

(START OF SCHOOL) YEAR		GRADES K	1	2	3	4	TOTAL
1997	LEWIS	4					4
	BURRELL		6	6	5	5	22
	TAYLOR		5	5	4	4	18
	TOTAL	4	11	11	9	9	44
1998	LEWIS	4					4
	BURRELL		5	6	5	5	21
	TAYLOR		5	5	4	4	18
	TOTAL	4	10	11	9	9	43
1999	LEWIS	4					4
	BURRELL		5	6	5	5	21
	TAYLOR		5	5	4	4	18
	TOTAL	4	10	11	9	9	43
2000	LEWIS	4					4
	BURRELL		5	6	5	5	21
	TAYLOR		5	5	4	4	18
	TOTAL	4	10	11	9	9	43

Source: Metropolitan Area Planning Council.

APPENDIX 4

POPULATION FORECAST

AGE GROUP	1980	1985	1990	1995
0-4	792	841	860	923
5-9	1116	1226	923	911
10-14	1434	1079	762	797
15-19	1435	1215	1040	952
20-24	1162	1127	1151	883
25-29	1151	1382	1709	1477
30-34	1102	1277	1509	1506
35-39	1082	1069	1106	1379
40-44	886	930	1027	1221
45-49	768	855	988	1002
50-54	776	800	866	938
55-59	672	653	665	763
60-64	506	566	651	690
65-69	406	435	487	486
70-74	358	355	370	424
75-79	231	256	289	319
80-84	164	176	196	199
85+	107	104	109	117
TOTAL	14148	14346	14708	14988

Source: U.S. Census of Population 1980.
General Population Characteristics. Massachusetts.
Massachusetts Department of Public Health 1985.
Division of Health Statistics and Research.
Unpublished Data.
Metropolitan Area Planning Council.

APPENDIX 5

RESIDENT BIRTHS

	YEAR	BIRTHS
HISTORICAL		
	1980	185
	1981	184
	1982	191
	1983	184
	1984	172
	1985	216
	1986	230
	1987	172
PROJECTED		
	1988	221
	1989	224
	1990	227
	1991	223
	1992	219
	1993	216
	1994	212
	1995	208
	1996	204
	1997	201
	1998	197
	1999	194
	2000	190

Source: Massachusetts Department of Public Health. Division of Health Statistics and Research. Unpublished Data. Birth projections by the Metropolitan Area Planning Council.

APPENDIX 6

TOWN BIRTHS BY SCHOOL DISTRICT

YEAR	TAYLOR	BURRELL	UNKNOWN	TOTALS
1981	70	79	22	171
1983	43	65	55	163
1985	72	77	40	189
1987	49	58	26	133
	234	279	143	656

(PERCENTS)

YEAR	TAYLOR	BURRELL	UNKNOWN	TOTALS
1981	40.9	46.2	12.9	100.0
1983	26.4	39.9	33.7	100.0
1985	38.1	40.7	21.2	100.0
1987	36.8	43.6	19.5	100.0
	35.7	42.5	21.8	100.0

Note: Births were coded to school district through street address listings obtained from the Foxborough Town Census.

Source: Foxborough Town Census. Office of the Town Clerk.

APPENDIX 7

FOXBOROUGH BIRTH RATES

AGE OF MOTHER	1982 BIRTHS/ 1000	1984 BIRTHS/ 1000	1986 BIRTHS/ 1000	AVERAGE
15-19	12.68	13.65	18.48	15.91
20-24	73.63	61.08	76.38	70.82
25-29	116.50	96.04	132.37	117.62
30-34	87.63	78.60	106.04	93.82
35-39	30.91	32.97	33.27	32.78
40-44	0.00	2.14	4.14	2.78
45-49	0.00	0.00	0.00	0.00

Source: Massachusetts Department of Public Health.
Division of Health Statistics and Research.
Unpublished Data.
Birth rates calculated by the Metropolitan
Area Planning Council.

FOXBOROUGH CRUDE DEATH RATE *

AGE GROUP	1982	1984	1986	AVE.
0-4	1.233	2.407	1.178	1.606
5-9	0.000	0.000	0.000	0.000
10-14	0.000	0.000	1.982	0.661
15-19	0.000	0.000	0.853	0.284
20-29	0.000	0.882	0.000	0.294
30-39	0.805	0.749	2.803	1.452
40-44	0.853	1.610	0.763	1.075
45-49	1.245	4.773	5.741	3.920
50-54	3.319	3.257	1.065	2.547
55-59	1.245	4.773	5.741	3.920
60-64	11.465	7.547	7.453	8.822
65-69	10.526	19.787	9.217	13.177
70-74	16.981	14.467	19.031	16.826
75-79	33.573	20.979	38.549	31.034
80-84	30.812	28.169	48.023	35.668
85+	178.423	159.363	141.762	159.849

* DEATHS PER THOUSAND RESIDENTS

Source: Massachusetts Department of Public Health.
Division of Health Statistics and Research.
Unpublished Data.
Crude death rate calculated by the Metropolitan Area Planning Council.

APPENDIX 9

NET MIGRATION

AGE GROUP	1980-1985
0-4	100
5-9	450
10-14	-37
15-19	-214
20-24	-306
25-29	221
30-34	127
35-39	-29
40-44	-148
45-49	-26
50-54	47
55-59	-113
60-64	-93
65-69	-49
70-74	-25
75-79	-73
80-84	0
85+	0
TOTAL	-169

Source: U.S. Census of Population 1980.
General Population Characteristics. Massachusetts.
Massachusetts Department of Public Health 1985.
Division of Health Statistics and Research.
Unpublished Data.
Calculations by the Metropolitan
Area Planning Council.

APPENDIX 10

FOXBOROUGH GRADE PROGRESSION RATIOS

YEAR		BIRTH->K	1	2	3	4	AVERAGE
1983	BURRELL						1.53
	TAYLOR						1.36
	AVERAGE	1.07	0.99	0.96	0.99	1.00	1.43
1984	BURRELL	1.55	1.00	1.13	1.12	0.97	1.05
	TAYLOR	0.92	1.41	0.96	0.98	0.98	1.04
	AVERAGE	0.85	1.14	1.04	1.04	0.97	1.04
1985	LEWIS	0.78					
	BURRELL		0.87	0.96	1.00	1.11	0.98
	TAYLOR		1.53	1.01	0.92	1.08	1.09
	AVERAGE	0.78	1.09	0.97	1.05	1.01	1.03
1986	LEWIS	0.91					
	BURRELL		0.90	0.97	1.11	0.94	0.98
	TAYLOR		1.47	0.96	1.01	0.97	1.06
	AVERAGE	0.91	1.10	0.97	1.07	0.96	1.02
1987	LEWIS	1.01					
	BURRELL		0.88	1.07	0.99	1.03	0.98
	TAYLOR		1.42	0.95	0.99	0.97	1.06
	AVERAGE	1.01	1.07	1.01	0.99	1.01	1.02
1988	LEWIS	1.06					
	BURRELL		0.76	1.06	0.96	1.00	0.93
	TAYLOR		1.41	1.07	1.03	1.00	1.12
	AVERAGE	1.06	0.99	1.07	0.99	1.00	1.01
1983-1988 AVERAGE	BURRELL		0.88	1.04	1.04	1.01	0.98
	TAYLOR		1.45	0.99	0.98	1.00	1.08
		0.94	1.06	1.00	1.02	0.99	1.09

Source: Metropolitan Area Planning Council calculations from school enrollments provided by the Foxborough School Department.

FINAL RESULTS OF THE FOXBOROUGH
RESIDENTIAL BUILD-OUT ANALYSIS
6/9/88

	NUMBER OF UNITS							
	TOWN TOTAL	SCHOOL DISTRICTS		VOTING DISTRICTS				
		Burrell	Taylor	1	2	3	4	5
CURRENT CONSTRUCTION AND PROJECTS IN THE DEVELOPMENT PIPELINE (a)								
Under Construction	516	472	44	34	414	34	23	11
Approved Subdivision Plan	53	25	28	0	20	7	19	7
Definitive Subdivision Plan	50	0	50	0	0	0	0	50
Preliminary Subdivision Plan	42	35	7	0	35	7	0	0
Conceptual Plan	23	23	0	16	7	0	0	0
CURRENT CONSTRUCTION SUBTOTAL	684	555	129	50	476	48	42	68
POTENTIAL DEVELOPMENT-R40								
Vacant Parcels (b)	1595	903	692	181	415	528	275	196
Parcels currently with a non-residential use (c)	192	35	157	0	16	9	88	79
R40 POTENTIAL SUBTOTAL	1787	938	849	181	431	537	363	275
POTENTIAL DEVELOPMENT-R15								
Vacant Parcels	459	156	303	263	0	66	130	0
Parcels currently with a non-residential use	315	240	75	16	0	293	5	1
R15 POTENTIAL SUBTOTAL	774	396	378	279	0	359	135	1
POTENTIAL SUBTOTAL	2561	1334	1227	460	431	896	498	276
TOWN TOTAL	3245	1889	1356	510	907	944	540	344

SOURCE: METROPOLITAN AREA PLANNING COUNCIL.

APPENDIX 12

SUMMARY OF RESIDENTIAL DEVELOPMENT

FOXBOROUGH

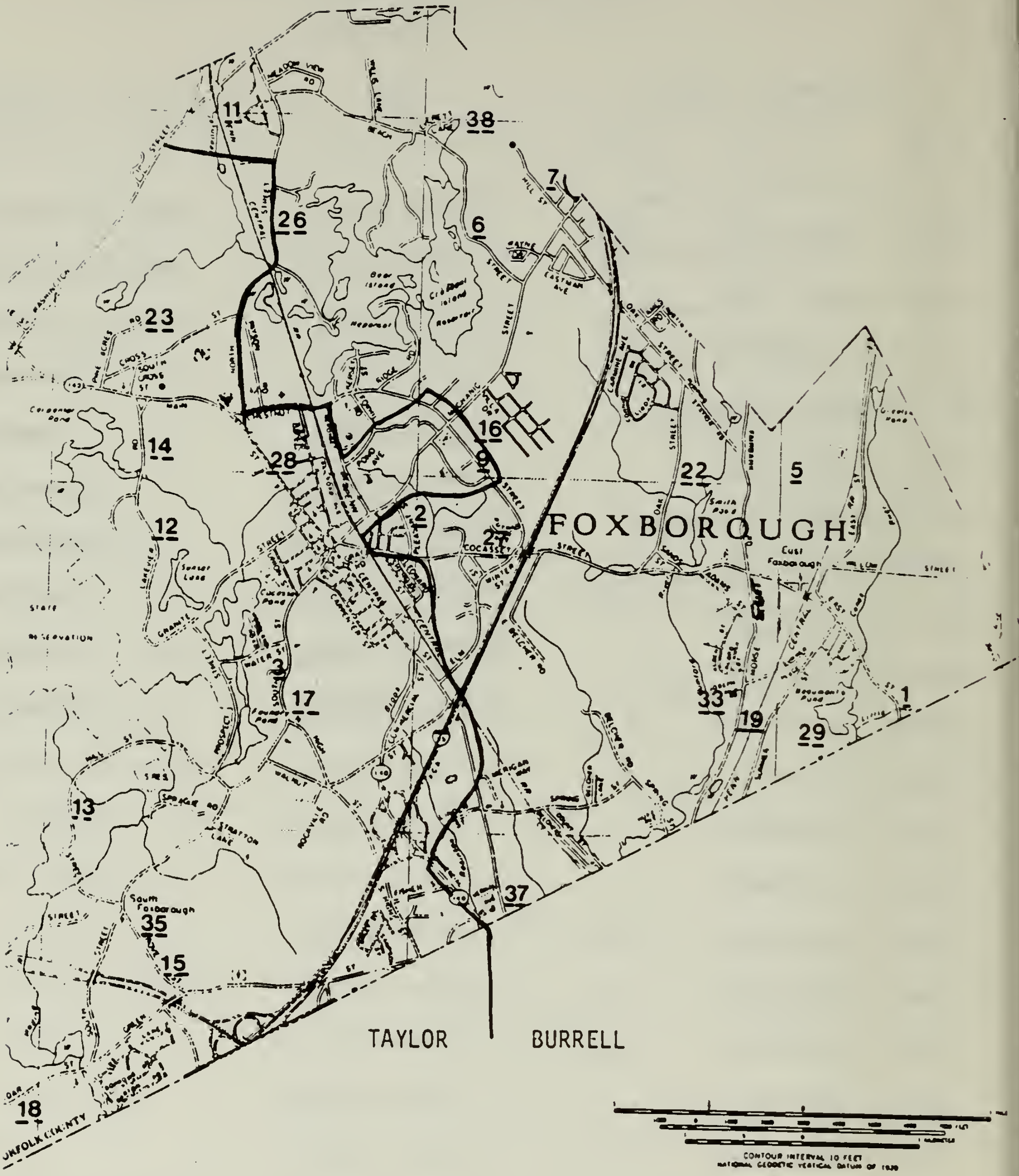
#	PROJECT TITLE	TYPE	UNITS	STATUS	OPEN
1	ANGLETREE ESTATES	SINGLE-FAMILY	36	APPROVED	1988
2	ARLINGTON STREET	SINGLE-FAMILY	2	APPROVED	1988
3	BIRCH TREE ROAD	SINGLE-FAMILY	6	APPROVED	1988
5	CANNON FORGE	CONDOMINIUM	327	APPROVED	1988
6	CORY LANE	SINGLE-FAMILY	6	APPROVED	1988
7	DUDLEY HILLS	SINGLE-FAMILY	51	APPROVED	1988
9	FOX RUN MEADOW	SINGLE-FAMILY	10	APPROVED	1988
10	GUSNIC DRIVE	SINGLE-FAMILY	5	APPROVED	1988
11	HARTWELL DRIVE EXT.	SINGLE-FAMILY	2	APPROVED	1988
12	LAKEVIEW ESTATES	SINGLE-FAMILY	5	APPROVED	1988
13	LONGMEADOW ESTATES	SINGLE-FAMILY	10	APPROVED	1988
14	PERRY PROPERY	SINGLE-FAMILY	11	APPROVED	1988
15	QUISSET WOODS	SINGLE-FAMILY	11	APPROVED	1988
16	VILLA DRIVE	SINGLE-FAMILY	18	APPROVED	1988
17	WASHINGTON'S CROSSIN	SINGLE-FAMILY	21	APPROVED	1988
18	WITCH POND	SINGLE-FAMILY	36	APPROVED	1988
19	CLIFFORD LANE	SINGLE-FAMILY	11	APPROVED	1989
20	DRAYTON	SINGLE-FAMILY	3	APPROVED	1989
21	RIDGEWOOD ESTATES	SINGLE-FAMILY	4	APPROVED	1989
22	WOODLANDS ESTATES	SINGLE-FAMILY	11	APPROVED	1989
23	PINE ACRES EXT.	SINGLE-FAMILY	5	APPROVED	1990

SUMMARY OF RESIDENTIAL DEVELOPMENT

FOXBOROUGH

#	PROJECT TITLE	TYPE	UNITS	STATUS	OPEN
26	WHISPERING PINES	SINGLE-FAMILY	24	PENDING	1995
27	HONEYCOMB ESTATES	CONDOMINIUM	36	PENDING	1995
28	ASHLEY ORCHARDS	CONDOMINIUM	24	PENDING	1995
29	BEAUMONT'S POND	SINGLE-FAMILY	30	PENDING	1995
31	GREEP PROPERTY	SINGLE-FAMILY	7	PENDING	1995
32	ROYAL PINE	SINGLE-FAMILY	9	PENDING	1995
33	PIGNATO PROPERTY	SINGLE-FAMILY	1	PENDING	1995
35	SOUTH & GROVE STREET	SINGLE-FAMILY	50	APPROVED	1995
37	SOUTH OAKS	SINGLE-FAMILY	8	PENDING	1995
38	DUDLEY HILL EXT.	SINGLE-FAMILY	13	PENDING	1995

APPENDIX 13



FOXBOROUGH

APPENDIX 14

BUILDING PERMITS ISSUED

UNITS PER STRUCTURE

YEAR	TOTAL	ONE	TWO	THREE OR FOUR	FIVE OR MORE
1977	64	44	0	4	16
1978	88	40	0	0	48
1979	44	44	0	0	0
1980	76	58	2	0	16
1981	44	14	0	0	30
1982	19	19	0	0	0
1983	188	60	0	0	128
1984	69	61	0	8	0
1985	72	40	0	8	24
1986	89	79	2	0	8
1987	99	73	18	0	8
AVERAGE	77	48	2	2	25

3-YEAR MOVING AVERAGE

UNITS PER STRUCTURE

YEAR	TOTAL	ONE	TWO	THREE OR FOUR	FIVE OR MORE
1978	65	43	0	1	21
1979	69	47	1	0	21
1980	55	39	1	0	15
1981	46	30	1	0	15
1982	84	31	0	0	53
1983	92	47	0	3	43
1984	110	54	0	5	51
1985	77	60	1	5	11
1986	87	64	7	3	13

Source: U.S. Bureau of the Census. Housing Units Authorized by Building Permits and Public Contract.
Averages calculated by the Metropolitan Area Planning Council.

APPENDIX 15

NESDEC ENROLLMENT FORECAST

(START OF SCHOOL) YEAR	GRADES K	1	2	3	4	TOTAL
1989	169	200	188	185	148	890
1990	212	176	198	190	182	958
1991	225	220	174	200	187	1006
1992	216	234	218	176	197	1041
1993	216	225	232	220	173	1066

Source: New England School Development Council.

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